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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,324	01/30/2002	Wei-Fang Su	BHT/3129-65	7863

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DOUGHERTY & TROXELL  
SUITE 1404  
5205 LEESBURG PIKE  
FALLS CHURCH, VA 22041

EXAMINER

CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 06/04/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/058,324

Applicant(s)  
Su et al.

Examiner  
Ling-Siu Choi

Art Unit  
1713



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 30, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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### DETAILED ACTION

1. This Office Action is in response to the Preliminary Amendment filed April 16, 2002.

Claims 1-5 were canceled and claims 6-10 have been added.

2. This Application is a Divisional of US Serial No. 09/571,597, filed May 15, 2000, now US Patent No. 6,492,540 B1.

### *Claim Objections*

3. Claims 6-10 are objected to because of the following informalities: (a) claim 6, line 1, "An organic/inorganic hybrid materials" is suggested to be changed to --An organic/inorganic hybrid material--; (b) claim 6, line 3, " $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$ " of the general formula are suggested to be changed to -- $R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$ , respectively; (c) claims 6-9, the format of these claims are not conventional: the claim must be in **one sentence form only**; (d) claims 7-8, line 2, "said the material" is suggested to be changed to --said material-- or --the material--; (e) claims 7-9, line 1, "contains" is suggested to be changed to --containing--; (f) claim 9, line 5, "preferred" is suggested to be deleted; lines 8 and 10-11, "preferred with" is suggested to be deleted; lines 9 and 11, "preferably" is suggested to be deleted; (g) claim 10, line 5, "a mixture" is suggested to be changed to --or a mixture--.

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Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

**4. The following is a quotation of the second paragraph of 35 U.S.C. 112:**

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

5. Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6, the recitation "M[OR<sub>1</sub>-O-CO-C(R<sub>2</sub>)=CR<sub>3</sub>R<sub>4</sub>]<sub>n</sub> " causes indefiniteness because R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are not defined.

Claims 7-10, line 2, the recitation "as claimed in claim 1" causes indefiniteness because they depend on the canceled claim.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by

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raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, (1) claim 9 recites the broad recitation "toxic metal" on line 4, and the claim also recites "lead", which is the narrower statement of the range/limitation; (2) claim 9 recites the broad recitation "the metals with the atomic number greater than the silicon element" on line 4-5, and the claim also recites "titanium, bismuth" on lines 11-12, which is the narrower statement of the range/limitation; (3) claim 9 recites the broad recitation "n is equal to 1 to 12" on line 11, and the claim also recites "n is preferably equal to 1 to 4" on lines 11-12, which is the narrower statement of the range/limitation;

Claims 9-10, lines 1-2, the recitation "A compound....as claimed in claim 1" causes indefiniteness because claim 1 is drawn to an organic/inorganic hybrid material but not the metal aliphatic acryl alkoxide compound,

Claim 9, line 2, "n" is defined as "valence of metal". However, on the same claim, lines 8, 10, and 11, "n" is defined as "1 to 12" and "preferably equal to 1 to 4".

***Claim Rejections - 35 USC § 103***

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arney et al. (US 6,329,058 B1).

*The present invention relates to an organic/inorganic hybrid material which is prepared by the steps of*

1	$M[OR^I-O-CO-C(R^2)=CR^3R^4]_n$ (hydrolysis) $\rightarrow$	metal oxide nanoparticles
		acrylate monomers
wherein the metal oxide nanoparticles are well dispersed in the acrylate matrix		
2	metal oxide nanoparticles /acrylate monomers	organic/inorganic hybrid material
	(free radical polymerization) $\rightarrow$	
wherein the metal oxide nanoparticles are dispersed in a polyacrylate		

(summary of claim 6)

Arney et al. disclose an organic/inorganic hybrid material, wherein a titanium based oxide particle treated with a dispersing agent are highly dispersed in an organic material, the titanium

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based oxide particles being greater than about 4 nanometers and less than about 20 nanometers and is transparent (abstract; claim 1). Arney et al. further disclose that the organic/inorganic hybrid material is prepared by the steps of (a) hydrolysis and condensation of the dispersing agent on the titanium based oxide particle, wherein the dispersing agent can be methacrylic acid, **methacryloxyethyl** acetoacetate, or **3-acryloxypropyl**trimethoxysilane, (b) dispersion of the treated titanium based oxide in ethylenically unsaturated monomer such as acrylates or methacrylate to form a mixture, and then (c) free radical polymerization of the mixture to form the organic/inorganic hybrid material (col. 4, line 65-67; col. 5, lines 1-67; col. 6, line 1-25; col. 7, lines 3-19; col. 9, lines 33-39).

The difference between the present claims and the disclosure of Arney et al. is the requirement of a specific process to prepare the organic/inorganic hybrid material.

It is noted that the present claims are drawn to a product-by-process ones. The case law holds that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product of the prior art, the claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the disclosure of Arney et al. and thereby obtain the present invention.

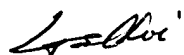
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*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is (703)305-0887.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on (703)308-2450.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703)308-2351.



Ling -Siu Choi

May 25, 2003